

STREAM: Jack Creek

DRAINAGE: West Fork Jarbidge River

STATE WATER CODE: 1202

GAWS COMPUTER NO.: 170501,05,155,035,045

SURVEY DATE: September 1,2,3,9 and 10, 1992

REPORT DATE: March 29, 1995

WRITTEN BY: Gary Lee Johnson

SURVEY METHODOLOGY: The U.S. Forest Service Region 4, Level III Fisheries Habitat Survey Method (March, 1989) was utilized at seven Sample Sites (SS) spread somewhat equidistant along the length of stream. Each sample site was preplotted on the U.S. Geological Survey 7 1/2' maps of the area.

The first 100 feet at each SS was sampled for fish using a one pass effort with a Dirigo backpack electroshocker. A 1/4-inch mesh block net was placed at the downstream end of each electrofished area to prevent fish loss. Captured trout were measured (fork length), weighed, and returned to the stream following electrofishing. Young-of-year trout were only measured. Fish seen while electrofishing but missed were recorded and used in calculating density and population estimates. Aquatic macroinvertebrate type and relative abundance were assessed following random stream and substrate inspection at each SS. The first of five habitat transects began 100 feet above the map location. Habitat transects were 50 feet apart. Where possible, stream discharge was calculated by either recording the time to fill a 5 gallon bucket below a falls or by using timed float, velocity estimates and water width and depth measurements over a 1.0 to 1.5 length of uniform stream. Both air and water temperatures were recorded at each site through the use of a hand held thermometer. Basic water quality parameters were measured using a HACH KIT.

LAND OWNERSHIP AND ACCESS: The entire Jack Creek drainage is public domain, the vast majority of which is administered by the Jarbidge District of the Humboldt National Forest. The lower 0.1 mile of stream course is lies on Bureau of Land Management ground that is administered by the Jarbidge Resource Area in Twin Falls, Idaho. From the town of Jarbidge, the mouth of Jack Creek can be reached 1.0 mile north of town on a maintained dirt road. Four wheel drive travel is recommended for travel up the Powerline Road that takes off on the north outskirts of Jarbidge. This road crosses Jack Creek about 1.0 mile upstream of the West Fork Jarbidge River. The road climbs out of Jack Creek drainage and connects with roads coming in from Idaho on what is called the Big Island. From the Big Island there is a road that ends on the East

rim of Jack Creek drainage. From road's end there is a good trail that used to be an old mining road that goes to the Altitude Mine Site which is situated at 9800 feet.

**WATERSHED DESCRIPTION:** The upper half of the Jack Creek drains north before the drainage bends northwest. Tributary streams to Jack Creek include Little Jack Creek (8630 ft), an unnamed intermittent drainage (6685 ft) and Jenny Creek (6320 ft). None of the tributaries are major perennial water sources for Jack Creek. The entire Jack Creek drainage encompasses 8.08 mi<sup>2</sup> of upper volcanic rock geologic formed land (Million-Scale Geologic Map of Nevada - 1977). The 5.8 mi. long Jack Creek ~~is~~ runs through a mostly deep, steep sided fluvial canyon that is generally less than a mile wide throughout its length. Jarbidge Peak (10,973 ft) lies at the head of the Jack Creek drainage. Jack Creek joins West Fork Jarbidge River at 5880 ft. Valley bottom width was narrow and averaged 29 ft. Valley sideslope gradient averaged 86%.

Ocular estimates of the uplands in the lower half of the drainage consisted of mountain brush (23%), aspen (14%), mountain mahogany (14%), juniper (7%), fir (5%), grasses and forbs (15%), rock/bare ground (22%). The upper watershed lacked mountain mahogany and juniper and had less aspen (9%), more fir along with some limber pine (31%), mountain brush (24%), grasses and forbs (15%) and rock (21%). The headwater forks were cloaked in a dense canopy of fir trees above which was above tree line.

**WATER STATUS:** Jack Creek was a gaining stream that ranged from 0.11 cfs to 1.38 cfs. Jack Creek above the confluence of Little Jack Creek was dry hence, the surveyed site SS1-7 was actually on Little Jack Creek. Jenny Creek contributed about 0.12 cfs flow to Jack Creek. Jack Creek was at a low to medium runoff stage and fast flowing. Drought conditions prevailed in 1992 with predicted streamflow forecasts well below normal. The mean water width and depth were 8.87 ft and 0.19 ft., respectively. The mean maximum depth from transect measurement readings was about 11 in.

Stream temperature ranged from 41°F at SS1-7 on Little Jack Creek to 56.5°F at SS1-1. Water clarity was cloudy at the uppermost two SS's and clear at all downstream SS's. The cloudy nature of the headwaters was presumably due to the melting of a high elevation snowfield at the head of Little Jack Creek. Measured basic water chemistry indicated nothing out of the unusual, although the relatively low alkalinity reading indicates a rather sterile environment for fish growth (see below).

Time	1400 hrs
Air Temp.	75°F
Water Temp.	53.5°F
Dissolved O <sub>2</sub>	10 ppm
CO <sub>2</sub>	5-10 ppm
pH	7.5
Alkalinity	34.24 ppm
Hardness	17.12 ppm

**STREAM HABITAT CONDITION INDEX (HCI):** The average HCI rating was 67% of optimum. The two poorest rated HCI parameters were pool structure (33% of optimum) and bank cover (43.9% of optimum). Rock was a major bank cover type along much of the stream thus, the reason for a low bank cover rating. Rock was also the dominant pool forming feature. Streambank stability rated "good" to "excellent" due to the bank rock content. Station 1 had the highest HCI rating - 80.2 % of optimum.

**STREAM CHANNEL TYPE AND STABILITY:** Using Rosgen's Stream Classification Guide, the stream resembled an A2 type channel. The stream stability rating was classified as "good" with an average score of 75.6. Due to the rocky streambanks, the poorest rated stream channel stability parameter was upper streambank vegetative protection. Stream gradient was 18% at SS-1, 5.5% to 7.0% between SS-2 and SS-5, 25% at SS-6, and 15% at SS-7. The streambottom was composed mostly of large rubble (40%) and boulders (25%) with lesser amounts of gravel (21%), bedrock (12%), and sand/silt (2%). The streambottom was moderately to tightly consolidated but, with only a slight amount of embeddedness due to the scarcity of fines. Algae was mostly spotty and occasionally scarce or common along the streambottom.

**RIPARIAN DESCRIPTION:** Riparian conditions all rated "good" at surveyed sites. Tree canopy consisted of a low density of Populus spp. and a occasional juniper at SS-1 through SS-5, and an occasional fir or limber pine at the two upper SS's. Willow was present at mostly low densities through SS-5 and absent from the upper two SS's. Alder held a low to moderate presence at the lowest three SS's. Station 1 had the greatest variety of tree/shrubs present (alder, chokecherry, dogwood, raspberry, rose, currant, and willow) were all present. Forbs and an occasional tree were essentially the only bank vegetation present at the upper two SS's. The valley bottom was mostly within a narrow "V" drainage. The valley bottom width ranged from 16 to 52 ft. wide whereas, the corresponding riparian width varied from 16 to 79 ft. wide. Stream canopy density averaged 43%.

**HABITAT VULNERABILITY:** The Index of Habitat Vulnerability (HVI) to management activities was "low" at all SS's except at SS-4 where it was calculated as "moderate". Streambank sensitivity ratings as determined from the combined stream channel stability scores for upperbank vegetative protection and lowerbank rock content averaged a score of 12 (8 - 14). All sites had good to excellent lowerbank rock content. Only the lower two SS's had good upperbank vegetative protection while fair or poor vegetative protection was present at the other SS's. A score of >13 indicates that one season of moderate livestock grazing can result in damaged streambanks. Ungulate streambank damage was rated as "light" to non existent at all SS's. Livestock riparian grazing or browsing was not evident along Jack Creek.

**AQUATIC BIOTA:** Jack Creek was home to an estimated 1709 native rainbow/redband trout and an estimated 32 bull trout. The mean fork length of 35 collected redband trout was 89mm (32-184mm). Length frequency analysis revealed a strong yearling redband trout age group, young-of-year and a small older aged group. Catchable-sized redband trout comprised an average of 7.25% of the population. Trout occupied approximately 2.7 miles of Jack Creek (SS-1 through SS-4). Redband trout density was inversely related to SS elevation. Diminished streamflow may have been the reason no fish were found at higher elevations. Upstream fish barriers existed at SS-6. A single 135 mm bull trout was captured at SS-2 (50.3 fish per mile). Electrofishing efficiency was judged to be mostly good based on the ratio of fish captured to the number of fish seen missed while shocking (71% mean capture rate).

Aquatic macroinvertebrates were well represented in Jack Creek. As is usual in clean mountain streams, both mayfly and caddisfly larvae were dominant. Three different stonefly species were noted at SS-1 while at SS-2 through SS-5 at least one species was rarely to commonly seen. Planaria were rarely to occasionally seen throughout Jack Creek. Dipteran larvae/pupae were only found at SS-4 and SS-5.

**PREVIOUS SURVEYS:** Jack Creek was first electrofished on August 27, 1957 with no fish being seen or captured over 200 ft. of stream located near the 1992 SS-5. A sheepherder told the original survey team that fish could be found below the confluence of the small tributary inflow located about a 0.1 mi. downstream of 1992 SS-4.

On August 16, 1974, a 100 ft. length of Jack Creek at the road crossing near Jenny Creek was electrofished. There were an estimated 475.2 rainbow trout per mile and 52.8 bull trout per mile estimated present.

**BEAVER STATUS:** There was no evidence of beaver use in the Jack Creek drainage and neither is there sufficient habitat for their occupancy.

## CONCLUSIONS

**STREAM'S IMPORTANCE:** Jack Creek continues to support a wild and native salmonid fishery composed of redband trout and bull trout.

## ISSUES AND CONCERNS:

- 1) Steep sideslope mass wasting/slumping was noted at SS-2.
- 2) Shallow soil over bedrock was present at SS-1 and SS-5.
- 3) The culvert located below the Forest Service - Bureau of Land Management Boundary may constitute an upstream barrier to fish movements.

Text.....	4
Map.....	2
GAWS Level III Stream Summary.....	1
GAWS Level III Habitat Condition Index Output Format.....	3
GAWS Level III Stream Habitat Inventory Transect Form.....	7
Stream Population Sampling Form.....	7
Species Population Inventory Summary.....	1
Redband Trout Length Frequency Histogram.....	1
Invertebrate Data Sheet.....	1
Kodachrome Color Slides.....	16



JARBIDGE SOUTH QUADRANGLE  
NEVADA - Hiko Co.  
7.5 MINUTE SERIES (TOPOGRAPHIC)

